

WHAT IS CLAIMED IS:

1. A switched-mode power supply including: a primary circuit including a primary winding and a switching device, the primary winding constituting a part of a transformer; and multiple secondary circuits each including a secondary winding and a load, the secondary windings constituting a part of the transformer, the switching device turning on/off an electric power supply to the primary winding to produce secondary electric powers applied from the multiple secondary windings to the loads;

said switched-mode power supply comprising:

a specified-voltage sensor section for detecting an output voltage from a specified one of the secondary circuits; and

an output limiting section for limiting an electric power output to another one or more of the secondary circuits when the specified-voltage sensor section has detected a voltage more than or equal to a predefined value.

2. The switched-mode power supply as defined in claim 1, wherein

the specified secondary circuit is supplied with a higher-voltage electric power than the other secondary

circuit.

3. The switched-mode power supply as defined in claim 1, wherein

the output limiting section includes:

a total power sensor section for detecting a value in accordance with a total secondary power which is a sum of power outputs to all the secondary circuits;

a control section for controlling turning on/off of the switching device in accordance with a detection result from the total power sensor section;

a short-circuit section, provided between output lines for the specified secondary circuit, for quasi-shortening the output lines together when the specified-voltage sensor section has detected a voltage more than or equal to the predefined value.

4. The switched-mode power supply as defined in claim 3, wherein

the total power sensor section is adapted to measure a current flow through the switching device.

5. The switched-mode power supply as defined in claim 1, wherein

the output limiting section includes a switching

device, provided in series between output lines for the other secondary circuit, for opening the output lines when the specified-voltage sensor section has detected a voltage more than or equal to the predefined value.

6. The switched-mode power supply as defined in claim 3, wherein

the output limiting section includes a switching device, provided in series between output lines for the other secondary circuit, for opening the output lines when the specified-voltage sensor section has detected a voltage more than or equal to the predefined value.

7. The switched-mode power supply as defined in claim 1, further comprising another output voltage sensor section for detecting an output voltage from the other secondary circuit,

wherein

the control section controls turning on/off of the switching device based on a detection result from the output voltage sensor section, to regulate the output voltage at a desired value.

8. The switched-mode power supply as defined in claim 7, wherein

the specified secondary circuit includes an output voltage regulator section between the specified-voltage sensor section and the load.

9. The switched-mode power supply as defined in claim 3, wherein

the control section is adapted to reduce the total secondary power when the detection result from the total power sensor section indicates that the total secondary power is more than or equal to a predefined value.

10. The switched-mode power supply as defined in claim 3, wherein

the control section includes a circuit with a latch function which stops driving the switching device when the detection result from the total power sensor section indicates that the total secondary power is more than or equal to a predefined value and which reverts to a previous condition when an electric power is restored.

11. The switched-mode power supply as defined in claim 3, wherein

the short-circuit section includes a thyristor.

12. The switched-mode power supply as defined in claim 11,

wherein the specified secondary circuit includes a resistor between the specified-voltage sensor section and the load,

wherein

a holding current required for the thyristor to be quasi-shortcd is retained flowing through the thyristor even when the load for the specified secondary circuit is shorted out.

13. The switched-mode power supply as defined in claim 12, further comprising a switching device, provided in parallel with the thyristor, for completely shorting terminals of the thyristor together.